

US EPA ARCHIVE DOCUMENT

Farmers Building Soil Health And Protecting Water Quality In Minnesota

Karen Scanlon, Conservation Technology Information Center

Dave Legvold, Legvold Farms

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Conservation Technology Information Center



CTIC champions, promotes and provides information on technologies and sustainable agricultural systems that conserve and enhance soil, water, air and wildlife resources and are productive and profitable.



A Public/Private Partnership



Members

- **Corporations, Institutions** (media, commodity groups, conservation organizations, associations), **Individuals**

Advisors & Partners

- Federal agencies, universities, extension, research institutions

What We Do



Connect



Inform



Champion



CONSERVATION *IN ACTION* TOURS

Annual tour showcasing innovative,
successful conservation farmers

2008 – Indiana

2009 – Illinois

2010 – Virginia

2011 – Ohio

2012 – Mississippi Delta

2013 – Indian Creek watershed, Illinois

2014 – Everglades Agricultural Area,
Florida



www.ctic.org/CIATours/





Today's Cover Crops

managing for future productivity

Radish	accumulating fertility, weed control
Cereal rye	weed control, nematode reduction, later planting
Hairy vetch	weed control, nitrogen, till
Annual ryegrass	fertility, compaction, root growth, nematode reduction
Crimson clover	nitrogen, soil till
Rapeseed	thiuram and nematode reduction
Spring oats	weed control, increase growth
Triticale	late planting, similar to rye



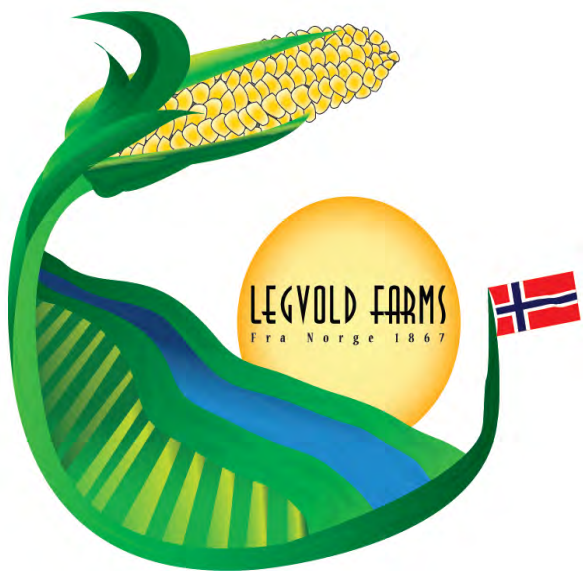


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CONSERVATION *IN ACTION* TOUR

August 11 – 12, 2015

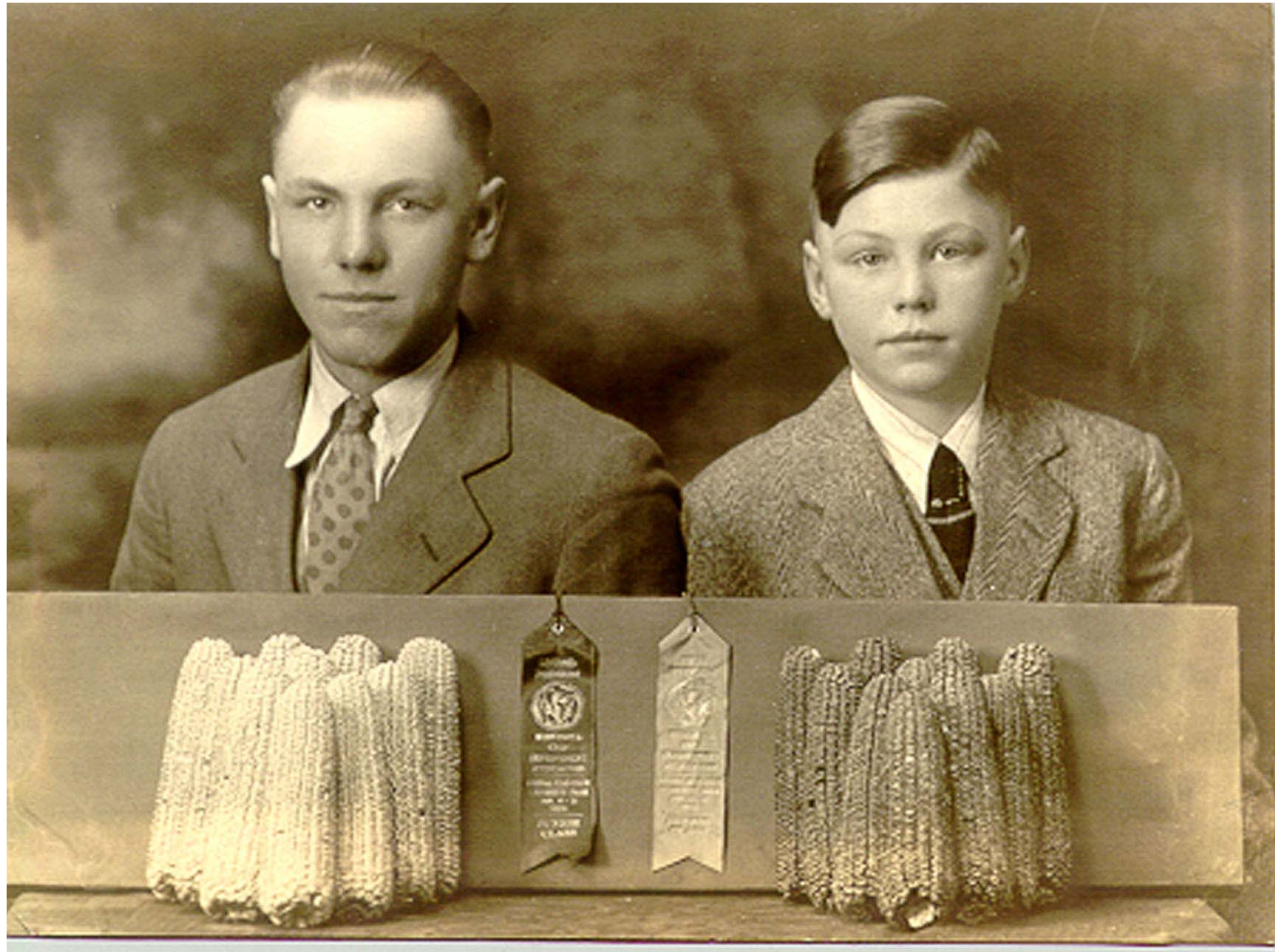


David Legvold

Legvold Farms

Northfield, MN

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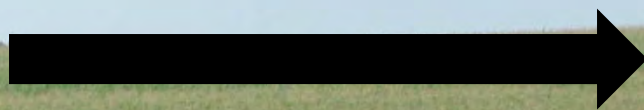








Masking the loss of quality soil?

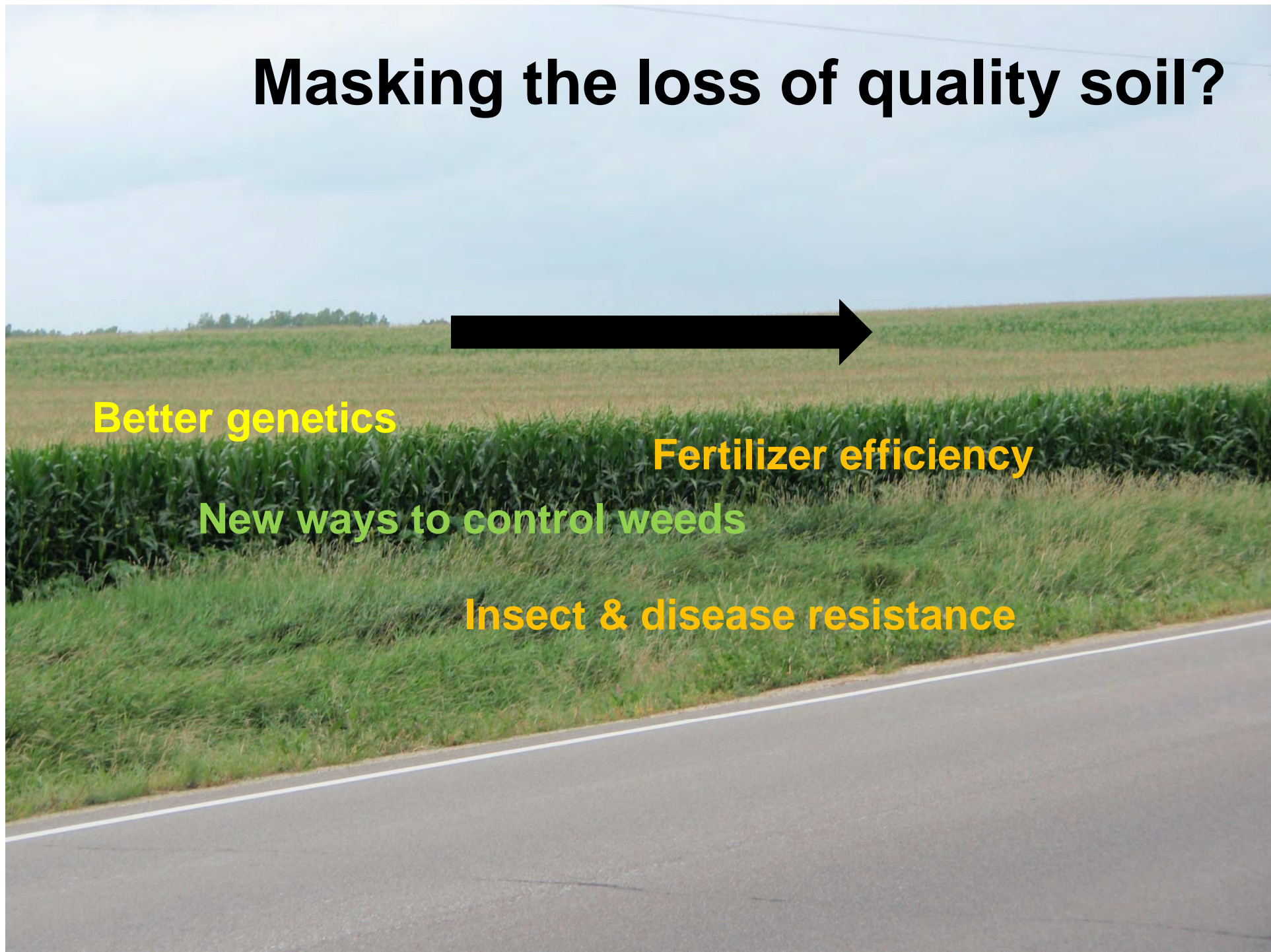


Better genetics

Fertilizer efficiency

New ways to control weeds

Insect & disease resistance



Better soils...HOW?

Well drained soil, add drain tile if needed

Reduced tillage

Greater water holding capacity

HEALTHY SOILS

Increased organic matter

Increased nutrient cycling

More biological life

Aggregate stability

Increased soil porosity

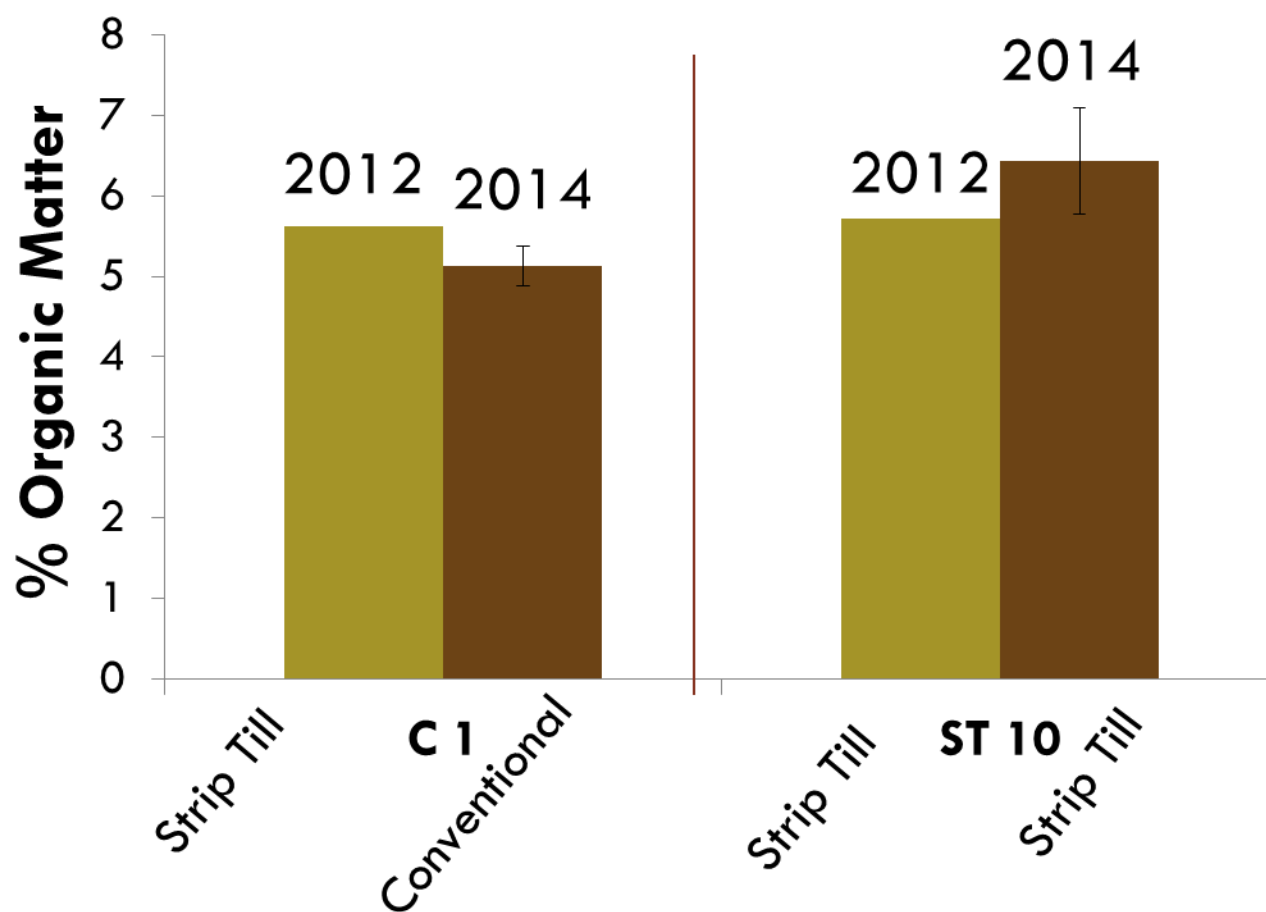


Fields in Various Stages of Strip-Tillage

1. Conservation Tillage

2. Nitrogen Management

3. Cover Crops











Soil Warrior with dry fertilizer system \$84,354

Trimble Auto Steer with cellular
correction \$20,322

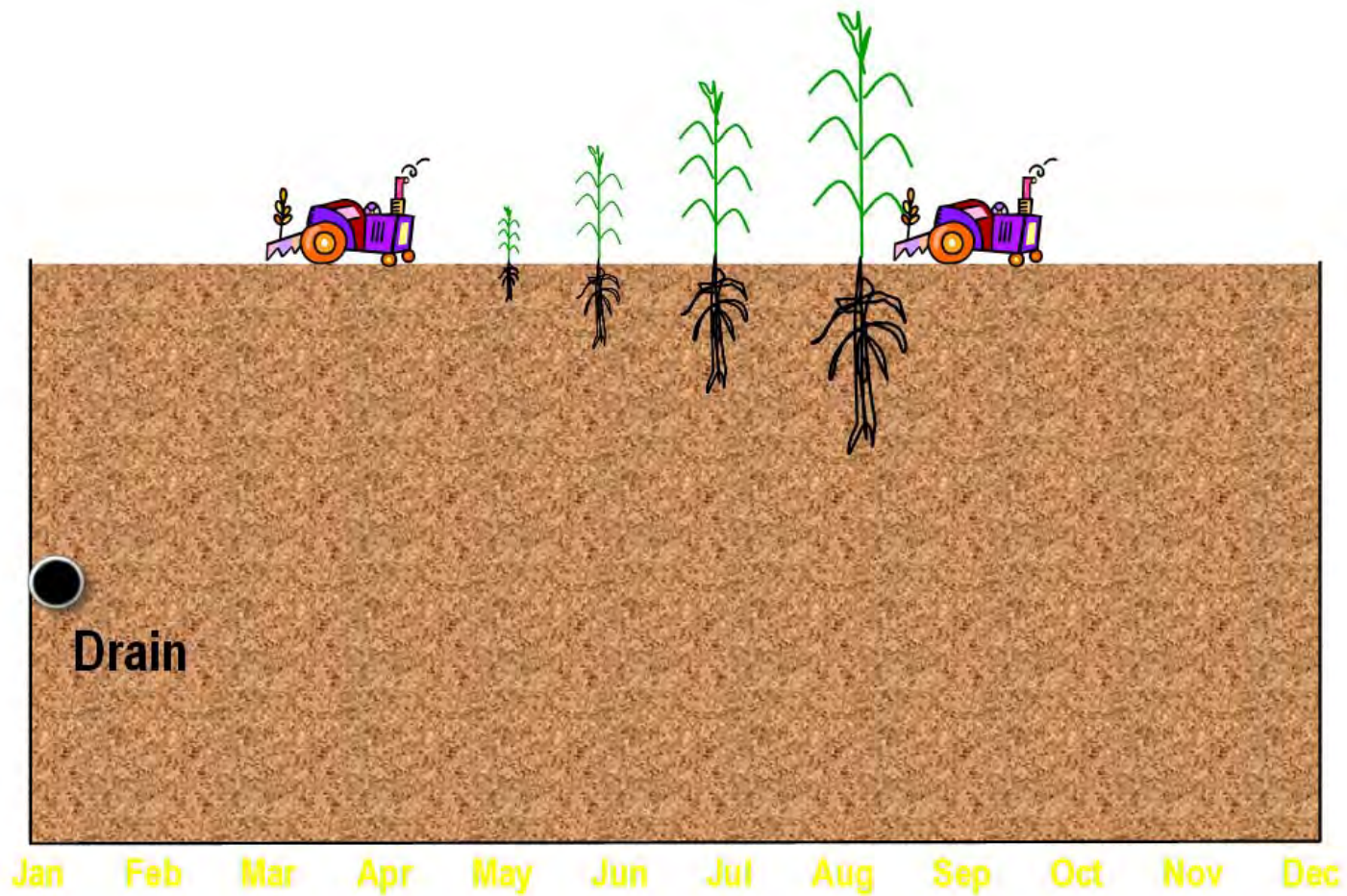




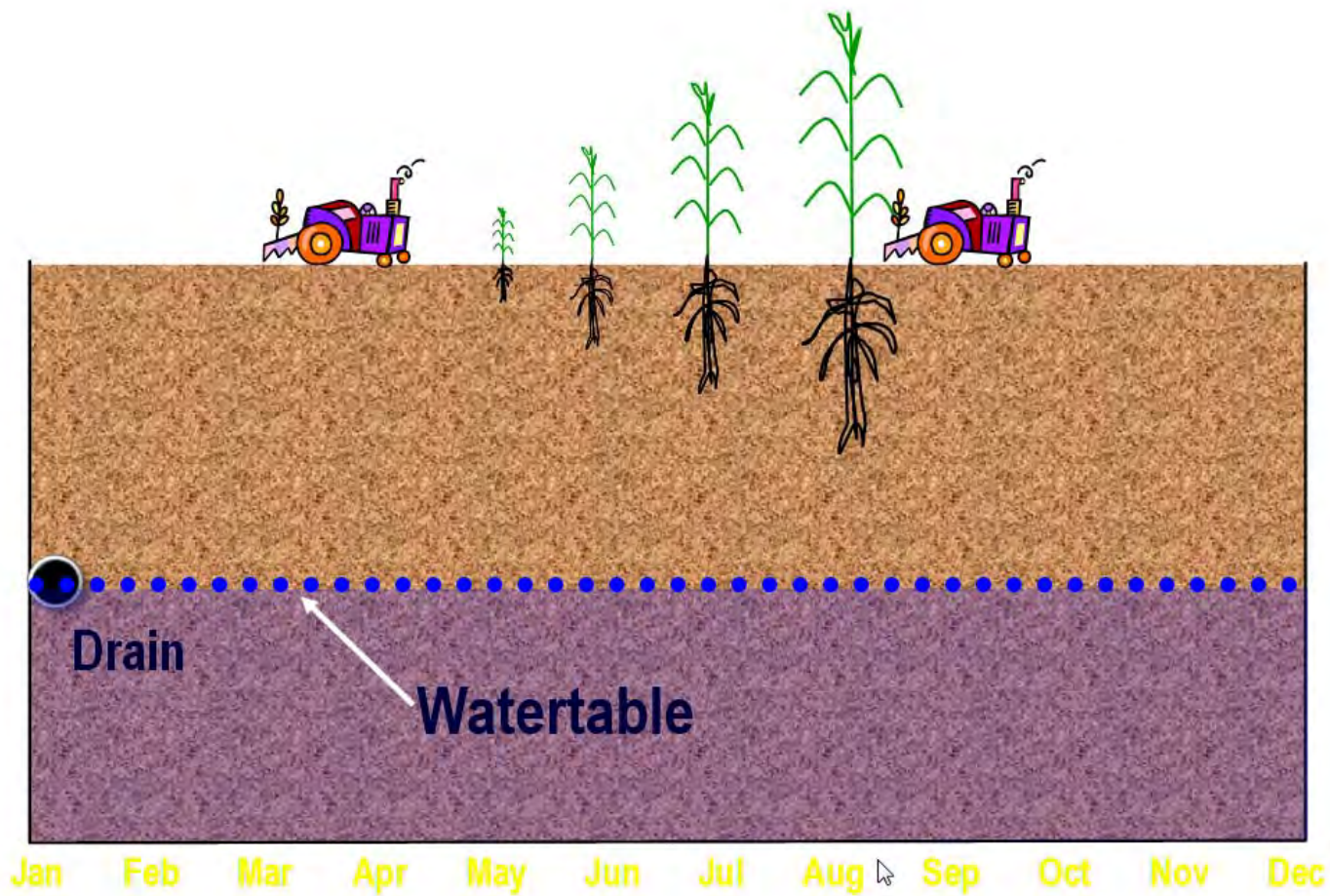




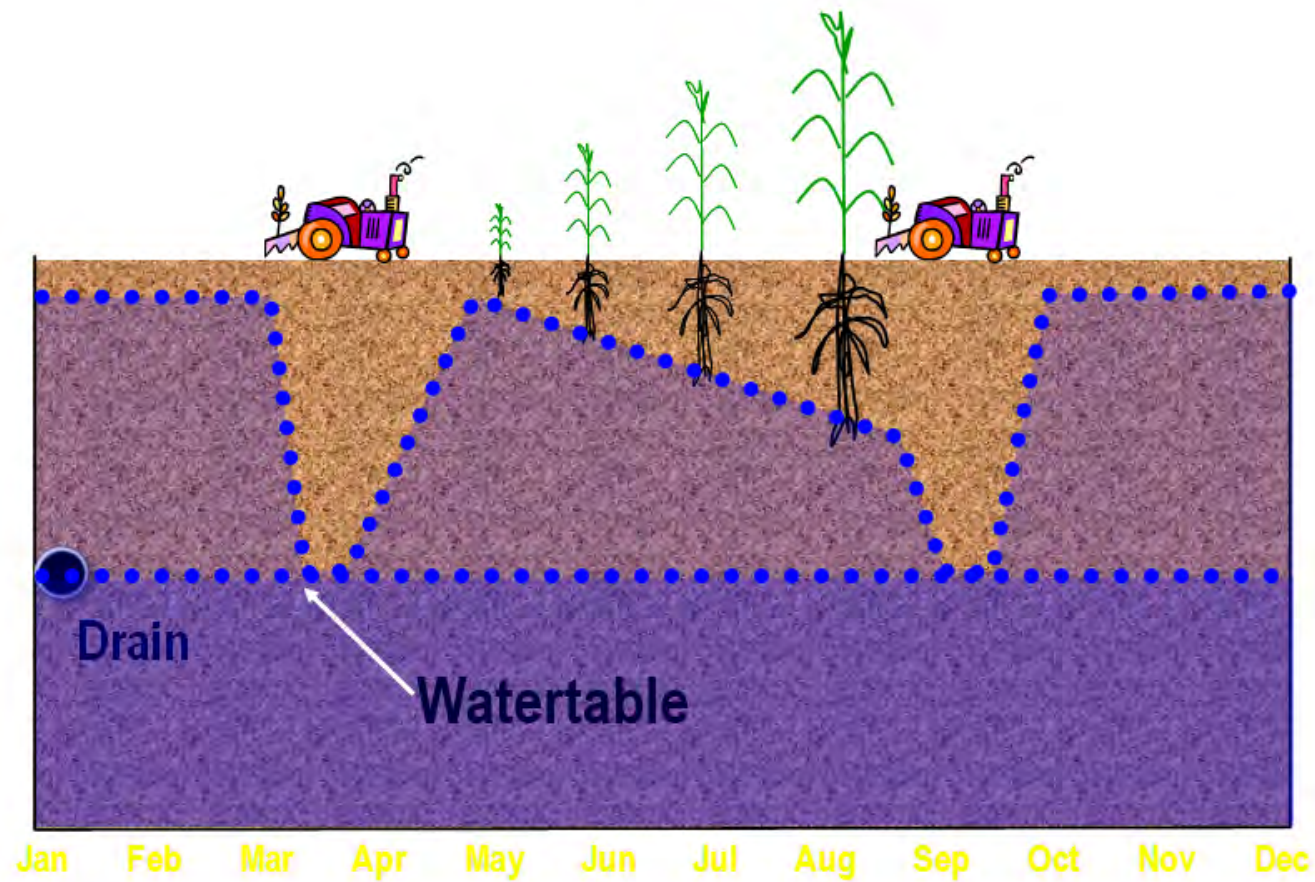
Drainage Water Management



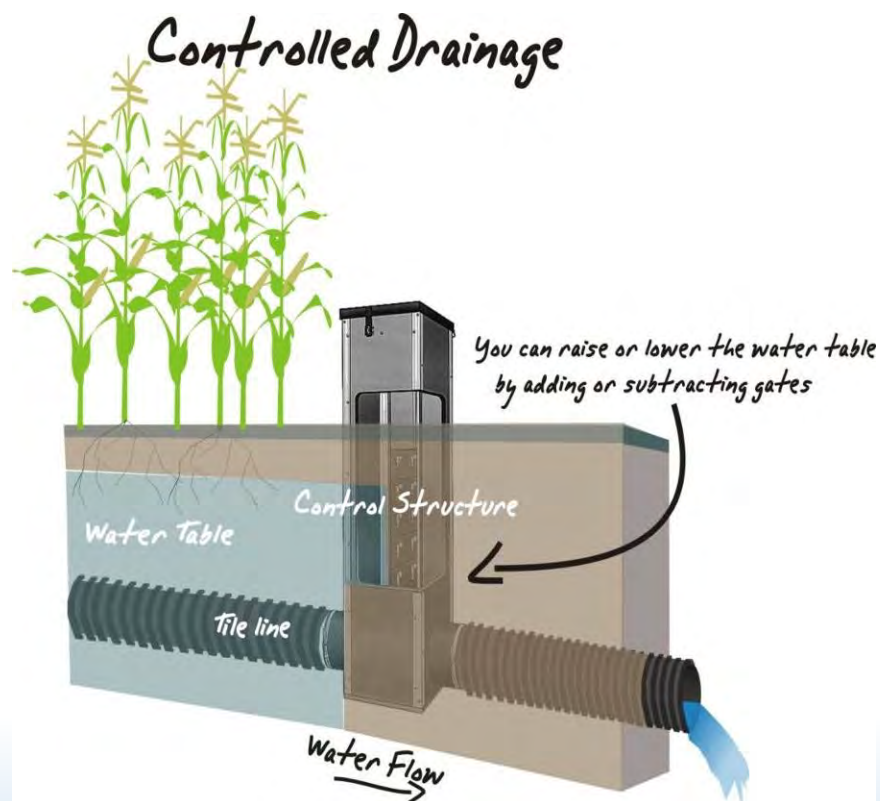
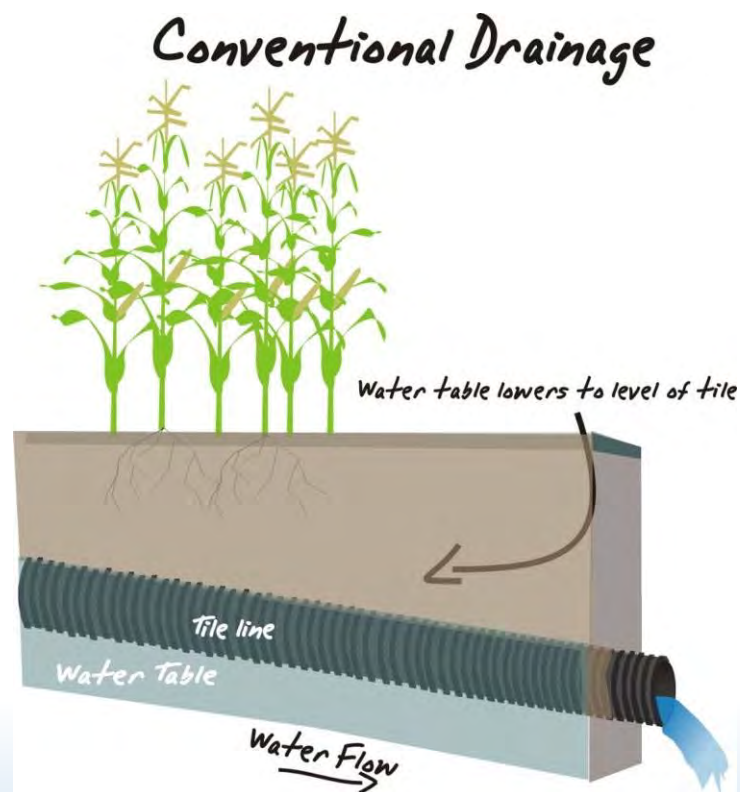
Drainage Water Management



Drainage Water Management



Drainage Water Management



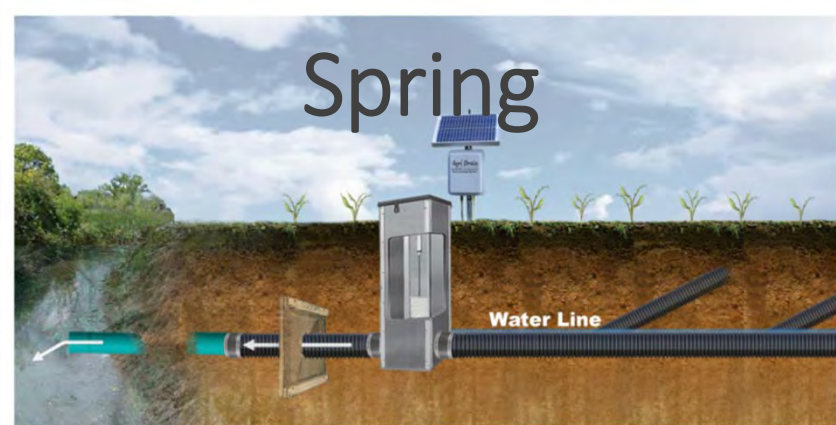
Drainage Water Management

Seasonal Schedule

Winter



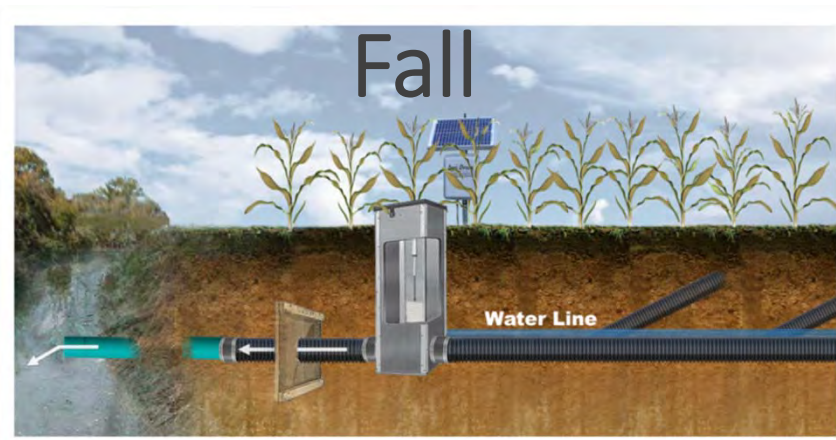
Spring



Summer



Fall



Drainage Water Management Benefits

Potential to regulate rate of water loss from field:

- **Maintain adequate water supply for the crop**
- **Keep nutrient in root zone**
- **Increase denitrification**
- **Increase groundwater recharge**
- **Create/improve wildlife habitat**
- **Reduce nutrient loss to downstream water systems**
- **Reduce flooding downstream**



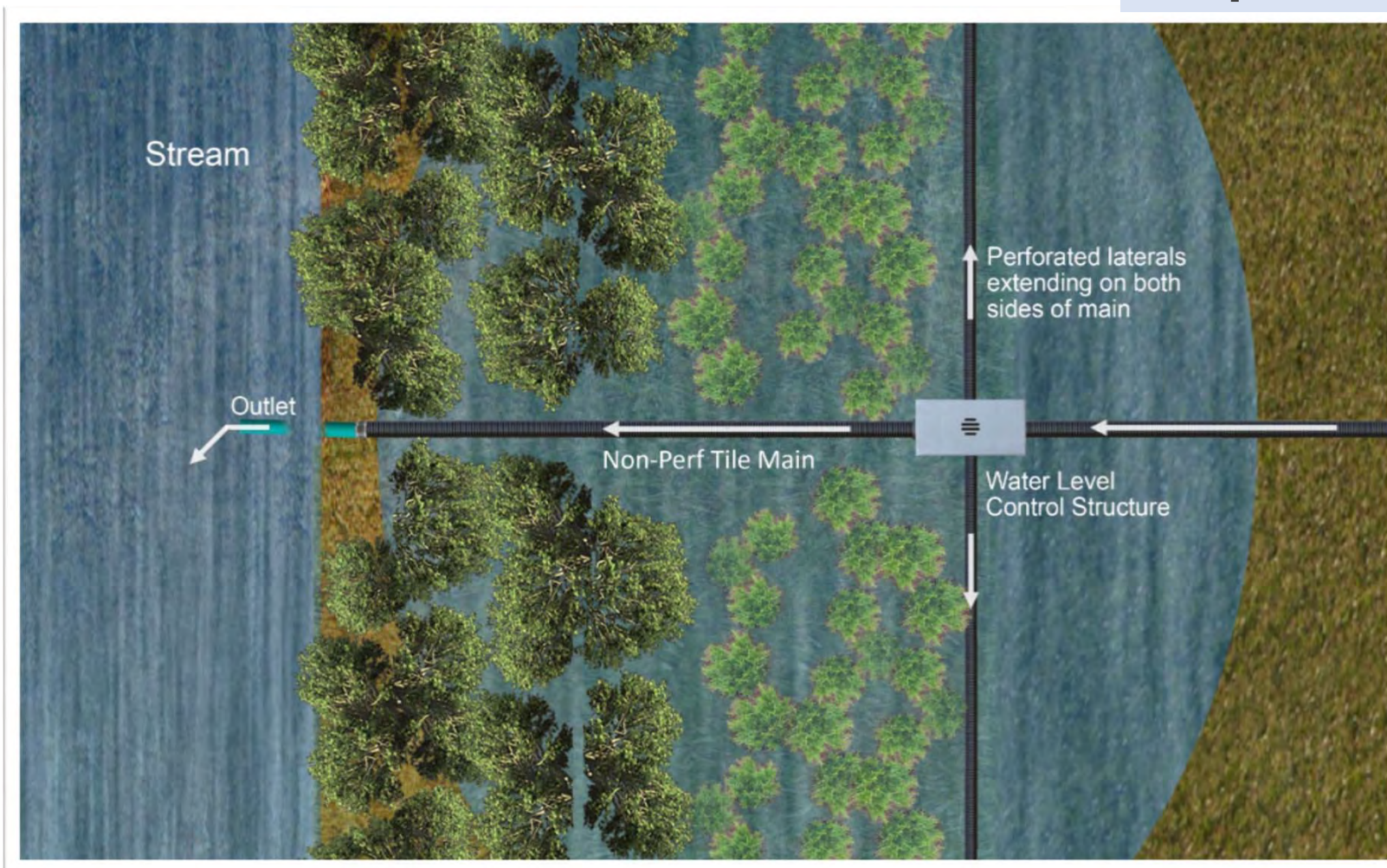






Saturated Buffers

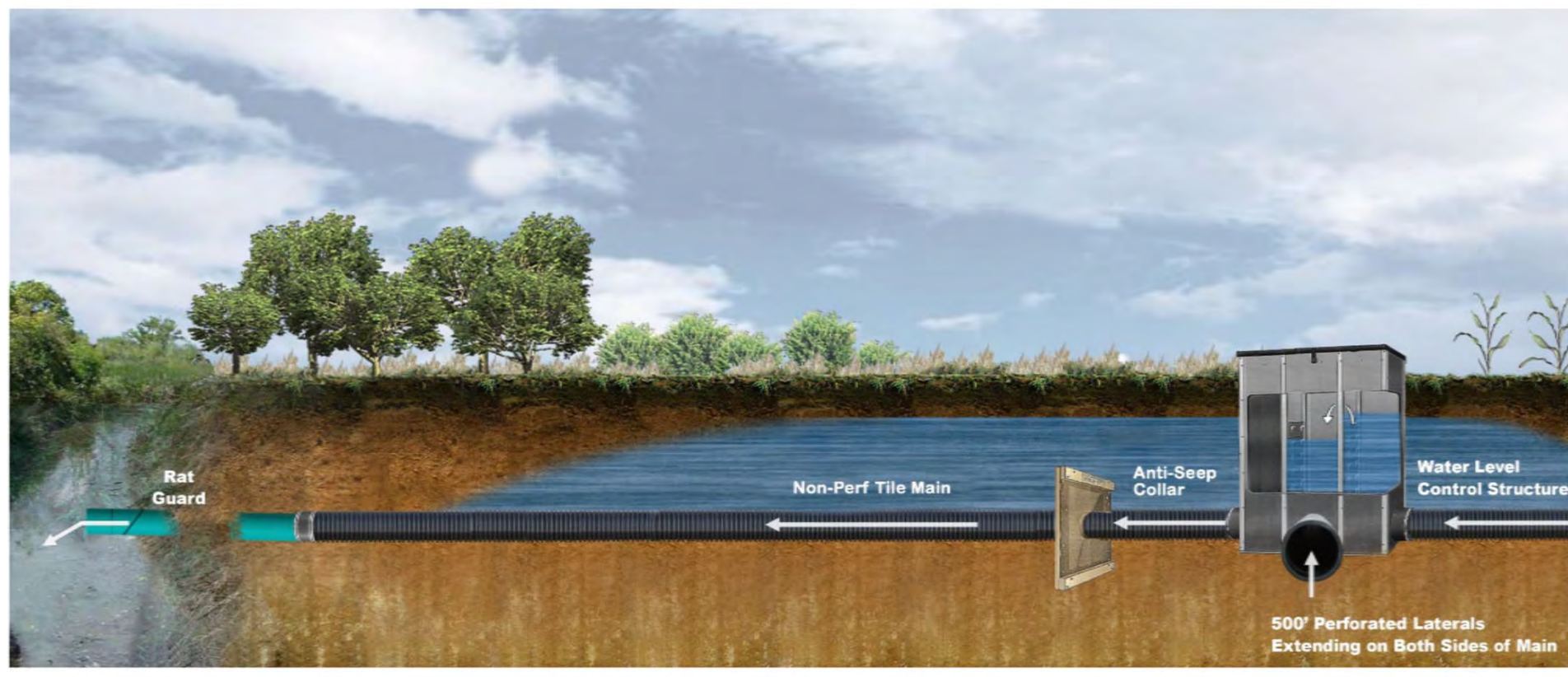
Top View



Graphics courtesy of
Agri Drain
 CORPORATION

Saturated Buffers

Side View



Graphics courtesy of
Agri Drain
CORPORATION

Saturated Buffers

High potential to reduce nitrate concentration and load by

- direct uptake by the vegetation in the buffer,**
- converting nitrate-nitrogen into harmless nitrogen gas and**
- reducing drain flow to stream.**

Where do we go from where we are now?

- 1. Try one thing each year. Seek experience.**
(Tillage, Nutrient management, Drainage, Varieties)
- 2. “Prove all things, hold fast that which is good”**
I Thess. 5.21
- 3. Move toward better soils with less tillage.**
(It takes patience-perhaps 5 years to notice a difference)
- 4. Make the most of your “40 chances”.**



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CONSERVATION *IN ACTION* TOUR

August 11 – 12, 2015

August 11, 2015
Tour Social

Cocktails, appetizers and conversation
with fellow tour participants, tour hosts,
sponsors and partners

5:30 - 7:30 pm



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CONSERVATION *IN ACTION* TOUR
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August 12, 2015

Hmong American Farmers Association

in Hastings, MN

- A model farm showcasing families growing food for other families
- Integrating nutrient management, pollinator plantings, cover crops, soil health and pest control into complex crop rotations





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Far-Gaze Farm

in Northfield, MN

- Better soil with reduced disturbance, cover crops and soil testing
- Working with ag retailers on nutrient management and manure management programs





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Maring Farm

in Kenyon, MN

- Rotational grazing and watering system
- Pollinators in an agricultural landscape





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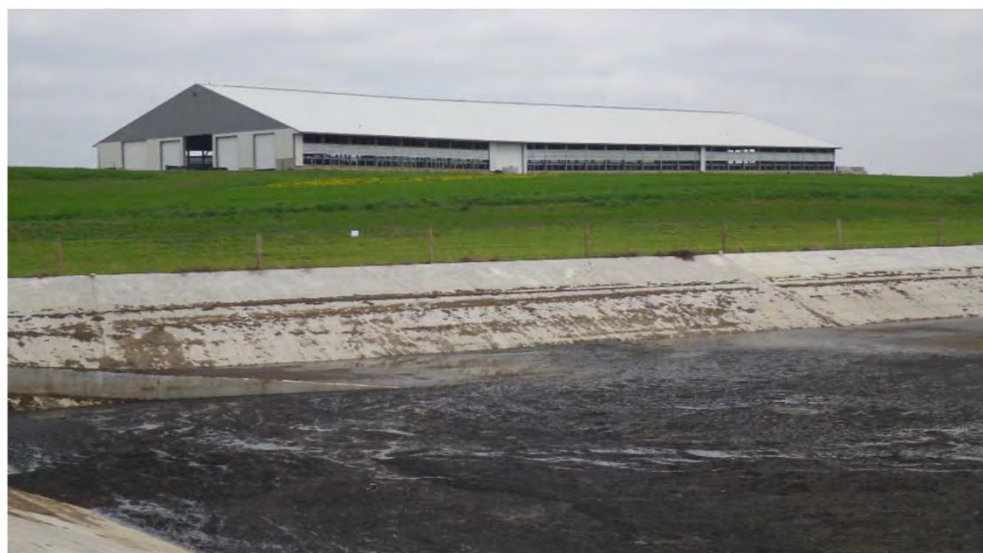
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Burfeind Dairy

in Goodhue, MN

- Modern facility and the partnerships involved
- Manure management and storage





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CONSERVATION *IN ACTION* TOUR
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St James Hotel
in Red Wing, MN



THANK YOU

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